ents of plants and vegetable substances, and their chemical analyses by Dr. Wittstein, translated from the German by Baron von Müeller. Definition of a new tree from East Australia by Baron Müeller.

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PAPERS READ.

On the Plants of New South Wales—No. VII.

By the Rev. Dr. Woolls, D.D., F.L.S., &c.

Class II. Monocotyledons.

The Monocotyledoneæ with ovary superior include three series viz. *Coronariæ*, *Nudifloræ*, and *Glumales*, the first having the perianth more or less distinctly in two series, the second with the perianth of small scales or none (except some *Alismaceæ*), and the third with flowers sessile within imbricate bracts or glumes. According to the most recent estimate for the three colonies, the numbers are as follows:

	Orders.	Genera.	Species.
Queensland.. ..	18 ..	160 ..	459
New South Wales..	17 ..	144 ..	419
Victoria	15 ..	121 ..	304

Of the Coronariæ, *Roxburghiaceæ* and *Pontederaceæ* are represented each by a solitary species in Queensland, whilst the *Pandaneæ* and *Aroideæ* do not extend to Victoria. The Palms, which are somewhat plentiful in Queensland, are rare in New South Wales and Victoria, four species occurring in the former,

and one only in the latter colony. With regard to the Sedges and Grasses, they are distributed amongst all the colonies in the following proportions:

	Genera.	Orders.
Queensland	64 ..	173
New South Wales ..	62 ..	160
Victoria	53 ..	101

The Introduced Plants of this class are becoming widely diffused throughout the Colony, especially the grasses. I have included *Cynodon dactylon*, (Pers.) and *Paspalum distichum*, (Linn.) amongst the indigenous species, but it seems highly probable that they accompanied the early settlers. With respect to the first, which has a wider range than the other, Mr. Bentham remarks that, "although now generally spread over the settled parts of extra-tropical Australia, it may have been introduced with cultivation as suggested by R. Brown."

1. *Sisyrinchium Bermudianum*, (Linn.)
2. ,, *micranthum*, (Cav.)
3. *Trichinium bulbocodium*, (H. K.)
4. *Sparaxis tricolor*, (H. K.)
5. *Zephyranthes atamasco*, (Herb.)
6. *Allium fragrans*, (Vent.)
7. *Commelyna Africana*, (Willd.)
8. *Stenotaphrum Americanum*, (Schrank.)
9. *Apluda mutica*, ? (Linn.)
10. *Anthoxanthum odoratum*, (Linn.)
11. *Phalaris canariensis*, (Linn.)
12. *Holcus lanatus*, (Linn.)
13. *Avena fatua*, (Linn.)
14. *Dactylis glomerata*, (Linn.)
15. *Poa annua*, (Linn.)
16. ,, *glauca*, (E. B.)
17. ,, *pratensis*, (Willd.)

18. *Briza maxima*, (Linn.)
19. ,, *minor*, (Linn.)
20. *Bromus mollis*, (Linn.)
21. ,, *sterilis*, (Linn.)
22. *Ceratochloa unilioides*, (DC.)
23. *Lolium temulentum*, (Linn.)
24. ,, *perenne*, (Linn.)
25. *Hordeum nodosum*, (Linn.)

The whole number of such plants for New South Wales may be about 150 or 160, whilst the indigenous species generally may be thus arranged:

	Orders.	Genera.	Species.
Thalamifloræ ..	22 ..	68 ..	174
Discifloræ ..	13 ..	60 ..	174
Calycifloræ ..	16 ..	124 ..	524
Monopetalæ ..	30 ..	201 ..	654
Monochlamydeæ ..	17 ..	107 ..	392
Gymnospermeæ ..	1 ..	1 ..	2
Monocotyledoneæ	26 ..	195 ..	579
	125	756	2499

Amongst the monocotyledonous plants of this section, there are some of great economical and medicinal value. *Smilax glycyphylla* or the "native Sarsaparilla" is already known to medical men as a useful alterative. The various species of *Xanthorrhea* yield valuable resins; whilst many species of rushes and sedges may be utilized in the making of rope, mats, baskets, and paper. *Kentia monostachya* or the "Walking Stick Palm," is useful for what its name implies; *Livistona australis* is not only edible in the tender parts, but its fibre is employed in the making of hats; and *Ptychosperma Cunninghami* is the most elegant of the genus in New South Wales. *Typhonium Brownii* and *Colocasia macrorrhiza*, though poisonous in a raw state, may be used as

food after a certain preparation, whilst the roots of *Heleocharis*, *Typha*, and *Scirpus* have been valued by the Blacks for their nutritious properties. *Zostera* was much employed for the stuffing of beds in the early days of the colony, and *Alisma plantago* has a colonial as well as a European reputation for its edible tubers. In Russia, this plant is regarded as efficacious for canine madness, and, in America, it is renowned as a remedy against the bite of the rattle-snake, but its virtues have been much overrated.

Amongst all the plants of this class, however, the grasses are by far the most important, as they afford the most valuable fodder for sheep and cattle, and are the most generally diffused. *Paspalum distichum*, though in the early days of the colony apparently a coast grass, has found its way up many of our rivers and established itself on alluvial flats. It is a good pasture grass but somewhat troublesome to agriculturists when it gets amongst the corn. The large genus *Panicum*, of which 21 species are indigenous in New South Wales, is placed by some writers as amongst those grasses which cause the fat of animals to be soft; but *P. decompositum* and some of the allied species are highly useful in many parts of the interior. This grass, though growing on poor soils, is one of the most nutritious of our grasses and the grains of it are made into cakes by the aboriginal natives. *P. crus-galli* and *P. obseptum* are sometimes termed "water-grasses," because they flourish most on the borders of lagoons or swamps. They are much eaten by cattle, but are not esteemed for fattening qualities. Baron Mueller reports very favourably of the genus *Andropogon*, especially of *A. erianthoides*, *A. refractus* and *A. Halappensis*. The last (which is common to Europe, Asia, and Africa), he says, "is a rich perennial grass. It yields a large hay crop, as it may be cut half a dozen times in a season, should the land be rich." Kangaroo grass *(Anthistiria ciliata* and *A. avenacea)* is one of the most productive of native grasses. An intelligent writer on Australian Grasses states "that with a

sufficiency of this grass, a little turned by the sun, the working powers of horses and cattle can be taxed to the utmost. They keep in better condition, doing hard work, on this than on any other description of native forage"; and, then he adds, as a caution, "If closely grazed by sheep or cattle (the former in particular) all the year round, it soon dies out." *Microlæna stipoides* is a delicate nutritious grass, vegetating freely during the winter, and preserving its vitality in the summer. Of *Stipa* and *Aristida*, the graziers do not think favourably, as the seeds are not only injurious to the wool, but penetrate the skin of sheep and sometimes kill them. A squatter says that he once lost 800 out of 2000 lambs by placing them on a part of the run where *S. satacea* abounded. Baron Mueller speaks of *Cynodon dactylon* "as an excellent lawn grass," and "not without value as a pasture grass." So far as the county of Cumberland is concerned, *C. dactylon* or "Couch Grass" is perhaps the most valuable of grasses, as it grows rapidly, resists great heat, and possesses fattening properties. Some species of *Danthonia*, *Chloris*, *Sporobolus*, *Eragrostis*, and *Poa* (especially *E. tenella* and *P. cæspitosa*) are commended, but of *Glyceria fluitans* or the Manna Grass, the Baron remarks, "Excellent for stagnant water and slow-flowing streams. The foliage is tender. The seeds are sweet and palatable, and are in many countries used for porridge." *Festuca bromoides*, though not regarded by some as indigenous, is highly useful as it flourishes earlier in the spring than some of those enumerated, and thus furnishes fodder when most required. *Bromus arenarius* is much valued on runs in the interior, and, in conjunction with other herbage, affords nutriment to cattle.

The properties of our native grasses require to be investigated thoroughly. In the Victorian Agricultural Report, a distinction is made between those grasses which produce stearine and those which produce fat. Amongst the former are reckoned *Anthistiria Poa*, *Festuca*, *Danthonia* and *Eriachne*. It does not appear, however, that these grasses have been subjected to analysis, but it is

said that in districts where such vegetation prevails the stock may be despatched to distant markets with a probability of arriving in good condition. If the cattle subsisted exclusively on grass, it might be possible to form some opinion in regard to the comparative value of our Australian genera for grazing purposes; but when we take into consideration the fact that the cattle feed not only on grass, but also on many other plants (particularly of the *Salsolaceæ*, *Amarantaceæ*, *Geraniaceæ*, and *Umbelliferæ)*, it seems difficult to arrive at any satisfactory conclusion. There can be no doubt that some grasses are more fattening than others, but until a careful analysis has been made it appears somewhat premature to declare, excepting in general terms, what genera are best adapted for the purposes indicated. Particular species have been long known for their nutritive principles, but when we come to speak of genera, little can be said for certain.

On a new species of Eurystopodus.

By E. P. Ramsay, F.L.S., &c.

Eurystopodus nigripennis, *n. sp.*

Head with light ashy vermiculations and freckles; the feathers of the forehead, crown, and occiput with a black shaft line very broad on the crown of the head; chin, loreal region, and narrow band round the hind neck black, strongly tinged with rufous-chestnut; a narrow oblique patch of white on either side of the throat, but not joined on the chin, chest blackish brown, the tips of the feathers marbled with ashy, forming two roundish spots one on either side of the tips of the feathers, or confluent and forming irregular broken bands right across, sides of the body barred with a lighter ashy tint in the same way, the interspaces between the ashy bands, black; flanks, abdomen and under tail coverts strongly washed with rufous-chestnut and barred with